



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,477	12/13/2001	Dennis Tong	TONG 2	6646
8933	7590	12/17/2004	EXAMINER	
DUANE MORRIS, LLP IP DEPARTMENT ONE LIBERTY PLACE PHILADELPHIA, PA 19103-7396			PAYNE, DAVID C	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,477

Applicant(s)

TONG, DENNIS

Examiner

David C. Payne

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 25 March 2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Tong, D.T.K. et al., "160 Gbit/s clock recovery using electroabsorption modulator-based phased-locked loop", Electronic Letters 9th November 2000, Vol. 36 No. 23 (hereinafter referred to as Tong).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

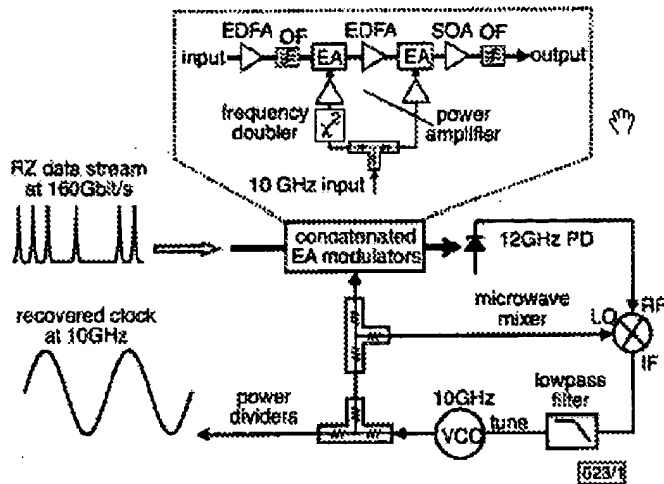


Fig. 1 Experimental setup of EA-PLL.

Inset: Details of concatenated EA modulators
OF: optical filter

Re claims 1, 4, 10, 13 Tong disclosed (*Figure 1 above*)

A clock recovery circuit/method for synchronizing a clock signal having frequency of approximately f_0 (10 GHz) with an optical data signal having a frequency of $N \times f_0$ (160 Gbit/s), where N is an arbitrary rational number, comprising: a local oscillator (VCO) for generating said clock signal; a sampler (*concatenated EA modulators*) for producing an output signal indicative of a phase difference between said clock signal and said optical data signal; an optical detector coupled to detect said output signal as an electrical signal (12GHz PD); and a mixer (*microwave mixer*) for isolating at least one harmonic of said electrical signal and for downconverting said at least one harmonic to a baseband error signal, wherein said local oscillator is tuned in response to said baseband error signal to synchronize said clock signal with said optical data signal (*p. 1951 col. 2, paragraph 1*).


Art Unit: 2633

Re claims 2, 11 and 18, Tong disclosed


wherein said electrical signal includes a phase error component centered at approximately f_0 , and wherein said mixer mixes said phase error component with said clock signal to produce said baseband error signal (*p. 1951 col. 2, paragraph 1*).

Re claims 3, 12 and 19, Tong disclosed



further comprising a low pass filter (*see Figure 1* ) coupled between an output of said mixer and an input of said local oscillator for extracting a low frequency component from said baseband error signal for tuning said local oscillator.

Re claim 5, 7 and 15, Tong disclosed

wherein said sampler further comprises at least one optical amplifier (*see Figure 1* , ) for making an output power of said electroabsorption modulator less sensitive to an input power of said optical data signal.

Re claims 6, 14 and 20, Tong disclosed

wherein said sampler includes a plurality of concatenated electroabsorption modulators coupled to produce a switching window sufficiently narrow for sampling said optical data

signal (*see Figure 1* )

Art Unit: 2633

Re claims 8 and 22, Tong disclosed

wherein at least one of said plurality of concatenated electroabsorption modulators are monolithically integrated with said at least one optical amplifier (*p. 1951 col. 2, paragraph 1*).

Re claims 9, 16 and 24, Tong disclosed

wherein said optical detector operates at a frequency (*12 GHz*) that is approximately equal to the frequency (*10 GHz*) of said clock signal.

Re claim 17, Tong further disclosed the data signal is a time division multiplexed optical signal (*p. 1951 col. 2, paragraph 1*).

Re claims 21 and 23, wherein said electroabsorption modulator circuit further comprises at least one optical amplifier (*EDFA*) for compensating for insertion losses in said plurality of concatenated electroabsorption modulators.

Conclusion

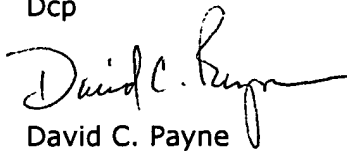
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2633

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp

A handwritten signature in black ink, appearing to read "David C. Payne", with a stylized flourish at the end.

David C. Payne
Patent Examiner
AU 2633